

## ABSTRACT OF THE INVENTION

The present invention relates to methods and compositions for regulating the activity of imidazoline receptors. In particular, the invention relates to pharmaceutical compositions comprising imidazoleacetic acid-ribotide (IAA-RP), imidazoleacetic acid-riboside (IAA-R) and its related congeners such as *pros*-linked ribotide and riboside. The invention is based on the discovery that IAA-RP and to a lesser extent IAA-P bind with a high affinity to imidazoline receptors. Antibodies to IAA-RP, IAA-R are additionally provided, as well as screening methods for identification of compounds that either promote or antagonize the activity of IAA-RP, IAA-R and its related congeners. The invention further relates to diagnostic and prognostic methods for detection of abnormalities in levels or activity of IAA-RP and IAA-R. The invention encompasses treatment of disorders related to the imidazoline system, including hypertension, glaucoma, psychiatric (*e.g.*, depression), neurological (*e.g.*, motor disorders, neurodegenerative disorders), diabetes and disorders related to platelet aggregation.